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Panel on Environmental Affairs

Meeting on 23 June 2014

Updated background brief on "Measures to strengthen the emission control of petrol and liquefied petroleum gas vehicles" prepared by the Legislative Council Secretariat

Purpose

This paper provides updated background information on the measures to strengthen the emission control of petrol and liquefied petroleum gas ("LPG") vehicles, and gives a brief account of the views and concerns expressed by Members on the subject.

Background

2. To improve roadside air quality, the Administration has been pursuing a combination of measures, including –

(a) introducing clean alternatives to diesel vehicles where practicable;

(b) adopting the most stringent vehicle emission and fuel standards where practicable;

(c) providing one-off grant to encourage commercial vehicle owners to replace their vehicles with new ones complying with the prevailing emission requirements;

(d) providing tax incentives to encourage the use of environment-friendly vehicles;

(e) mandating pre-Euro diesel vehicles to be equipped with emission reduction device;

(f) ensuring proper maintenance of diesel vehicles by implementing Smoky Vehicle Control Programme[1], increased fine and joint Police roadside inspection against smoky vehicles;

(g) encouraging franchised bus companies to retrofit suitable emission reduction devices to their bus fleets so as to reduce emissions;

(h) conducting a trial to retrofit Euro II and Euro III franchised buses with selective catalytic reduction devices to reduce nitrogen oxides emissions;

(i) encouraging the franchised bus companies to deploy more environment-friendly buses to serve the busy corridors;

(j) implementing pilot low emission zones for franchised buses along the busy corridors in Causeway Bay, Central and Mong Kok;

(k) funding the full cost of procuring six hybrid buses to be used by the franchised bus companies for trial along busy corridors; and

(l) adopting an incentive-cum-regulatory approach to phase out the heavily polluting pre-Euro IV diesel commercial vehicles ("DCVs") and setting a statutory retirement age of 15 years for newly registered DCVs.

3. According to the Administration, these actions have brought discernable air quality improvement at the roadside. Over the period from 2006 to 2012, the roadside air quality monitoring stations registered a reduction of 52%, 29% and 12% in the concentrations of sulphur dioxide, respirable suspended particulates and nitrogen oxides respectively. However, the concentration of nitrogen dioxide ("NO_2") at roadsides rose by 23% in the same period, resulting in the number of days with the Air Pollution Index exceeding 100 (i.e. reaching very high level) rising from 51 to 142 days.

4. Emissions from petrol and LPG vehicles (particularly LPG taxis and light buses) account for over 40% of vehicular NO_2 emissions at busy corridors. These vehicles rely on catalytic converters to reduce emissions. However, these catalytic converters will be worn out over use and needs to be replaced from time to time. If not, the emissions of these vehicles will increase by at

[1] The Smoky Vehicle Control Programme operates based on smoky vehicle reports provided by accredited spotters who are trained and tested to visually identify vehicles that emit smoke level over the legal limit of 50 Hartridge Smoke units when they are running on road. The Administration will issue Emission Testing Notices to the owners concerned requiring their vehicles to pass an advanced smoke test (done with the aid of a chassis dynamometer) at a designated vehicle emission testing centre within 12 working days. Failure to comply with the requirement will lead to vehicle licence cancellation by the Commissioner for Transport.

least 10 times. In the case of LPG taxis and light buses, the replacement needs to be made around every 18 months. It is estimated that the catalytic converters of some 80% and 45% of road running LPG taxis and light buses respectively have been worn out.

5. To strengthen the control of emissions from petrol and LPG vehicles, the Administration proposed a package of measures targeting at vehicles not properly maintained. The details are set out below.

<u>One-off subsidized replacement programme</u>

6. Following a two-month stakeholder consultation launched in November 2011, the Administration proposed to set aside $150 million for providing a one-off subsidy to assist vehicle owners to replace the catalytic converters and oxygen sensors of their taxis and light buses fuelled by petrol or LPG.

7. The one-off subsidy was approved by the Finance Committee ("FC") at its meeting on 13 April 2012 and subsequently launched in August 2013.

<u>Strengthened emission control measures</u>

8. Upon the completion of the replacement programme, the Administration would implement strengthened emission control measures to bring early relief to roadside air pollution. The salient features of the measures are summarized below –

(a) to use roadside remote sensing equipment to screen out in-use petrol and LPG vehicles that emit excessively, and require their owners to rectify their excessive emission problem;

(b) in line with the Smoky Vehicle Control Programme, to require those vehicles screened as emitting excessive emission to pass an advanced emission test done with the aid of a chassis dynamometer at a designated emission test centre within 12 working days for ascertaining the rectification of the excessive emission problem, and to cancel the licences of those vehicles failing to comply with the requirements. The vehicle owner will have to pay the emission test fee, which is currently set at $310 as stipulated in Schedule 10 of the Road Traffic Ordinance (Cap. 374); and

(c) to amend the relevant legislation so as to align the standards in the roadworthiness examination with the emission limits of the proposed strengthened emission control measures.

Implementation of the replacement programme

9. The replacement programme has 3 phases of application which closed on 31 January 2014. A total of 18 103 taxis and 3 572 light buses in Hong Kong were eligible to apply for the subsidy. During the application period, a total of 2 881 light buses and 13 942 taxis were registered in the programme, with a participation rate at 78% of the eligible vehicles. Participation in the catalytic converter replacement is voluntary. To encourage more vehicle owners to join the programme, the Administration invited vehicle owners who missed the deadlines to submit late applications from 2 to 17 January 2014. About 1 300 late applications were received during the period. The cumulative figures of applications received in the 3 stages are as follows –

	Cumulative figure of participating vehicles (Participation rate)		
Type of vehicles registered in the programme	Phase One (up to October 2013)	Phase Two (up to December 2013)	Final stage (up to January 2014)
Light buses	1 977 (55%)	2 436 (68%)	2 881 (81%)
Taxis	10 104 (55%)	13 043 (72%)	13 942 (77%)
Total	12 081 (56%)	15 479 (71%)	16 823 (78%)

Deliberations by Members

10. The proposal to control emissions from petrol and LPG vehicles was discussed by the Panel on Environmental Affairs ("the Panel") at its meeting on 28 November 2011 while the outcome of consultation on 27 February 2012. The major views and concerns expressed by Members at the meetings of the Panel and FC are summarized in the ensuing paragraphs.

One-off subsidized replacement programme

11. Noting that the LPG taxis replacement scheme had been implemented for almost 10 years, some members pointed out that many LPG taxis and light buses were approaching the end of their service lives. With the emergence of newer and more environment-friendly vehicles (such as electric vehicles), these members held the view that LPG taxis and light buses would be eventually phased out. Therefore, it might not be worthwhile to provide a one-off subsidy for owners to replace the catalytic converters and associated components of their LPG taxis and light buses. Some other members were concerned about the adequacy of the funding of $150 million to replace the catalytic converters and associated components of the existing fleet of 18 000 LPG taxis and 3 000 LPG light buses.

12. Some members advocated early replacement of the polluting components in taxis and light buses. They noted that the taxis and light buses sectors well understood the Administration's emission control measures, and did not resist them. They even urged the Administration to expedite implementation of the measures. Pointing out that the sectors understood that frequent cleansing of mixers, evaporators and exhaust gas recirculation control valves could contribute towards reducing vehicle emissions, these members requested the Administration to provide sufficient guidance to the sectors on how these components should be cleansed and how frequently they should be cleansed to achieve optimal effectiveness.

13. In view of the high estimated replacement cost of $5,000 to $7,000 and the limited service life of 18 months of a catalytic converter, some Panel members were concerned that owners of LPG taxis and light buses might have a hard time in replacing their catalytic converters on a regular basis, particularly without the one-off subsidy.

14. Given that catalytic converters had to be replaced on a regular basis, members considered that there was a need for the Administration to ensure the availability of sufficient number of vehicle repair workshops to provide replacement services. Efforts should also be made to encourage participation of small and medium-sized repair workshops in the tender exercise for the provision of replacement services to prevent monopolization.

Roadside remote sensing equipment

15. Some Panel members were skeptical about the effectiveness of roadside remote sensing equipment in screening out in-use petrol and LPG vehicles that emit excessively given the busy traffic in Hong Kong. As the roadside remote sensing equipment could only be used to check vehicles in single lane traffic, these members questioned its applicability in Hong Kong given the limited number of roads with single lane traffic.

16. Some other members were concerned that although the community generally supported measures that would improve air quality, there would be controversy if the relevant legislative amendments involved the sanction of cancellation of vehicle licence. Members called on the Administration to allow sufficient time for public consultation. They considered that it would be more effective to have the new legislation, the replacement programme and the new emission examination requirement for taxis and light buses to be in place in one go.

Council question

17. Hon TANG Ka-piu raised a question relating to measures to improve air quality at the Council meeting on 22 May 2013. Details of the Council question are hyperlinked in the **Appendix** for ease of reference.

Latest development

18. The Administration will report to the Panel the progress made regarding the measures taken to strengthen the emission control of petrol and LPG vehicles at the Panel meeting on 23 June 2014.

Relevant papers

19. A list of relevant papers is set out in the **Appendix**.

Council Business Division 1
Legislative Council Secretariat
18 June 2014

Appendix

List of relevant papers

Council/ Committee	Date of meeting	Paper
Panel on Environmental Affairs	28 November 2011	Administration's paper on "A Proposal to Strengthen the Control of Emissions of Petrol and Liquefied Petroleum Gas Vehicles" (LC Paper No. CB(1)353/11-12(01)) http://www.legco.gov.hk/yr11-12/english/panels/ea/papers/ea1128cb1-353-1-e.pdf Minutes of meeting (LC Paper No. CB(1)853/11-12) http://www.legco.gov.hk/yr11-12/english/panels/ea/minutes/ea20111128.pdf
Panel on Environmental Affairs	27 February 2012	Administration's paper on "A Proposal to Control Excessive Emissions of Petrol and Liquefied Petroleum Gas Vehicles" (LC Paper No. CB(1)1119/11-12(05)) http://www.legco.gov.hk/yr11-12/english/panels/ea/papers/ea0227cb1-1119-5-e.pdf Background brief on the proposal to strengthen the control of emissions of petrol and liquefied petroleum gas vehicles prepared by the Legislative Council Secretariat (LC Paper No. CB(1)1119/11-12(06)) http://www.legco.gov.hk/yr11-12/english/panels/ea/papers/ea0227cb1-1119-6-e.pdf Minutes of meeting (LC Paper No. CB(1)1493/11-12) http://www.legco.gov.hk/yr11-12/english/panels/ea/minutes/ea20120227.pdf Administration's follow-up paper on "A Proposal to Control Excessive Emissions of Petrol and Liquefied Petroleum Gas Vehicles" (LC Paper No. CB(1)1389/11-12(01)) http://www.legco.gov.hk/yr11-12/english/panels/ea/papers/ea0227cb1-1389-1-e.pdf

Council/ Committee	Date of meeting	Paper
Finance Committee	13 April 2012	Funding proposal on Head 44 – Environmental Protection Department Subhead 700 General non-recurrent New Item "One-off subsidy to assist vehicle owners to replace the catalytic converters and oxygen sensors of their petrol and liquefied petroleum gas taxis and light buses" (LC Paper No. FCR(2012-13)7) http://www.legco.gov.hk/yr11-12/english/fc/fc/papers/f12-07e.pdf Minutes of meeting (LC Paper No. FC175/11-12) http://www.legco.gov.hk/yr11-12/english/fc/fc/minutes/fc20120413.pdf

Hyperlink to relevant Council Question:

Date	Council Question
22 May 2013	Council question raised by Hon TANG Ka-piu http://www.info.gov.hk/gia/general/201305/22/P201305220597.htm